

PATENT**PENDING CLAIMS**

The following is a list of the pending claims:

1. (Previously Presented) An apparatus for multi-cast transmissions that minimize channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

using channel quality information for at least one subscriber to determine the timing of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the timing determined by the channel quality information.

2. (Original) The apparatus of Claim 1, wherein transmitting the identifier and the multi-cast service on at least one channel comprises:

transmitting the identifier on a first channel; and

transmitting the multi-cast on a second channel.

3. (Original) The apparatus of Claim 2, wherein the processing element is further for executing instructions for:

scrambling the multi-cast service before transmitting the multi-cast service on the second channel, wherein the scrambling is performed by using a code known only to the group of subscribers.

4. (Previously Presented) An apparatus for multi-cast transmissions that minimize channel resources, comprising:

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a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

- generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;
- choosing channel quality information by selecting the channel quality information associated with the subscribers identified by the identifier and having the worst channel conditions;
- determining the timing of the multi-cast service that allows the subscribers with the worst channel conditions to receive the multicast service with optimal channel quality, wherein the timing is determined based on the channel quality information associated with the subscribers with the worst channel conditions; and
- transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the timing determined by the channel quality information.

5. (Previously Presented) The apparatus of Claim 4, wherein the channel quality information is a measurement of channel interference of the forward link common pilot signal.

6. (Previously Presented) The apparatus of Claim 4, wherein the channel quality information is derived from transmission power levels of a base station.

7. (Original) The apparatus of Claim 4, wherein the channel quality information is a plurality of acknowledgment signals.

8. (Original) The apparatus of Claim 7, wherein choosing the channel quality information of the subscribers with the worst channel conditions comprises:

- transmitting a plurality of test data packets to the group of subscribers;
- waiting for a plurality of acknowledgment signals from the group of subscribers in response to the plurality of test data packets; and

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transmitting the multi-cast service if the plurality of acknowledgment signals indicates a response from a predetermined percentage of the group of subscribers.

9. (Previously Presented) An apparatus for multi-cast transmissions that minimizes channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

choosing the channel quality information of the subscriber identified by the identifier and having the worst channel conditions;

determining the timing of the multi-cast service that allows the subscriber with the worst channel condition to receive the multicast service with optimal channel quality, wherein the timing is determined based on the channel quality information associated in accordance with the subscriber with the worst channel condition; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the timing determined by the channel quality information.

10. (Original) The apparatus of Claim 9, wherein the channel quality information is an acknowledgment signal from the subscriber with the worst channel condition.

11. (Previously Presented) An apparatus for multi-cast transmissions that minimizes channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

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using channel quality information for at least one subscriber to determine the transmission format of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the transmission format determined by the channel quality information.

12. (Original) The apparatus of Claim 11, wherein transmitting the identifier and the multi-cast service on at least one channel comprises:

transmitting the identifier on a first channel; and

transmitting the multi-cast on a second channel.

13. (Original) The apparatus of Claim 12, wherein the processing element is further for executing instructions for:

scrambling the multi-cast service before transmitting the multi-cast service on the second channel, wherein the scrambling is performed by using a code known only to the group of subscribers.

14. (Previously Presented) An apparatus for multi-cast transmissions that minimizes channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

generating an identifier for a group of subscribers to a multi-cast service, wherein the identifier is for accessing the multi-cast service;

choosing channel quality information by selecting the channel quality information associated with the subscribers identified by the identifier and having the worst channel conditions; and

determining the transmission format of the multi-cast service that allows the subscribers with the worst channel conditions to receive the multicast service with optimal

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channel quality, wherein the timing is determined based on the channel quality information associated with the subscribers with the worst channel conditions; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the transmission format determined by the channel quality information.

15. (Previously Presented) The apparatus of Claim 14, wherein the channel quality information is a measurement of channel interference of the forward link common pilot signal.

16. (Previously Presented) The apparatus of Claim 14, wherein the channel quality information is derived from transmission power levels of a base station.

17. (Original) The apparatus of Claim 14, wherein the channel quality information is a plurality of acknowledgment signals.

18. (Original) The apparatus of Claim 17, wherein choosing the channel quality information of the subscribers with the worst channel conditions comprises:

transmitting a plurality of test data packets to the group of subscribers;

waiting for a plurality of acknowledgment signals from the group of subscribers in response to the plurality of test data packets; and

transmitting the multi-cast service if the plurality of acknowledgment signals indicates a response from a predetermined percentage of the group of subscribers.

19. (Previously Presented) An apparatus for multi-cast transmissions that minimizes channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

generating an identifier for a group of subscribers to a multi-cast service, wherein the identifier is for accessing the multi-cast service;

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choosing the channel quality information of the subscriber identified by the identifier and having the worst channel conditions;

determining the transmission format of the multi-cast service that allows the subscriber with the worst channel conditions to receive the multicast service with optimal channel quality, wherein the timing is determined based on the channel quality information associated with the subscriber with the worst channel condition; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the transmission format determined by the channel quality information.

20. (Original) The apparatus of Claim 19, wherein the channel quality information is an acknowledgment signal from the subscriber with the worst channel condition.

21. (Previously Presented) An apparatus for multi-cast transmissions that minimize channel resources, comprising:

a memory element; and

a processing element for executing a set of instructions stored in the memory element, the set of instructions for:

determining the channel quality information for a plurality of subscribers;

identifying the subscriber with the worst channel conditions;

scrambling a multi-cast service using a scrambling code known to the plurality of subscribers; and

transmitting the scrambled multi-cast service to the plurality of subscribers, wherein the scrambled multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

22. (Previously Presented) A method for broadcasting to a group of subscribers in a cellular communication network, comprising:

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determining the channel quality information for a plurality of subscribers; identifying the subscriber with the worst channel conditions;

scrambling a multi-cast service using a scrambling code known to the plurality of subscribers; and

transmitting the scrambled multi-cast service to the plurality of subscribers, wherein the scrambled multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

23. (Previously Presented) A method for broadcasting to a group of subscribers in a cellular communication network, comprising:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

using channel quality information for at least one subscriber to determine the timing of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the timing determined by the channel quality information.

24. (Previously Presented) A method for broadcasting to a group of subscribers in a cellular communication network, comprising:

generating an identifier for a group of subscribers, wherein the identifier is for accessing a multi-cast service;

using channel quality information for at least one subscriber to determine the transmission format of the multi-cast service to the group of subscribers; and

transmitting the identifier and the multi-cast service on at least one channel, wherein the multi-cast service is transmitted to each of the subscribers in accordance with the transmission format determined by the channel quality information.

25. (Previously Presented) A method for efficient multi-cast broadcasting, comprising:

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generating an identifier for a group of subscribers to a multi-cast service, wherein the identifier is for accessing a multi-cast service;

identifying the subscriber with the worst channel quality by analyzing a plurality of channel quality feedback indicators from a group of subscribers;

selecting a timing and a transmission format of the multi-cast service so that the multi-cast service will be received by the subscriber with the worst channel conditions; and

transmitting the identifier on a first signaling channel and the multi-cast service on a second channel to each of the subscribers in accordance with the timing and the transmission format as determined by the subscriber with the worst channel quality.

26. (Previously Presented) An apparatus of claim 11, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

27. (Previously Presented) An apparatus of claim 26, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

28. (Previously Presented) An apparatus of claim 27, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

29. (Previously Presented) An apparatus of claim 14, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

30. (Previously Presented) An apparatus of claim 29, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate,

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number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

31. (Previously Presented) An apparatus of claim 30, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

32. (Previously Presented) An apparatus of claim 19, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

33. (Previously Presented) An apparatus of claim 32, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

34. (Previously Presented) An apparatus of claim 33, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

35. (Previously Presented) An apparatus of claim 21, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

36. (Previously Presented) An apparatus of claim 35, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

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37. (Previously Presented) An apparatus of claim 36, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

38. (Previously Presented) An apparatus of claim 22, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

39. (Previously Presented) An apparatus of claim 38, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

40. (Previously Presented) An apparatus of claim 39, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

41. (Previously Presented) An apparatus of claim 24, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

42. (Previously Presented) An apparatus of claim 41, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

43. (Previously Presented) An apparatus of claim 42, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

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44. (Previously Presented) An apparatus of claim 25, wherein the multi-cast service is transmitted to each of the subscribers in accordance with a transmission format that is optimal for the subscriber with the worst channel conditions.

45. (Previously Presented) An apparatus of claim 44, wherein the transmission format includes at least two transmission parameters selected from the group comprising data rate, number of slots, bits per packet, code rate, modulation, symbol repetition and transmission duration.

46. (Previously Presented) An apparatus of claim 45, wherein at least two of the transmission parameters of the transmission format are adjusted based on the channel quality information.

47. (Previously Presented) An apparatus of claim 1, wherein the identifier is a Medium Access Control (MAC)_ID.

48. (Previously Presented) An apparatus of claim 4, wherein the identifier is a Medium Access Control (MAC)_ID.

49. (Previously Presented) An apparatus of claim 9, wherein the identifier is a Medium Access Control (MAC)_ID.

50. (Previously Presented) An apparatus of claim 14, wherein the identifier is a Medium Access Control (MAC)_ID.

51. (Previously Presented) An apparatus of claim 19, wherein the identifier is a Medium Access Control (MAC)_ID.

52. (Previously Presented) An apparatus of claim 21, wherein the identifier is a Medium Access Control (MAC)_ID.

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53. (Previously Presented) An apparatus of claim 22, wherein the identifier is a Medium Access Control (MAC)_ID.

54. (Previously Presented) An apparatus of claim 23, wherein the identifier is a Medium Access Control (MAC)_ID.

55. (Previously Presented) An apparatus of claim 24, wherein the identifier is a Medium Access Control (MAC)_ID.

56. (Previously Presented) An apparatus of claim 25, wherein the identifier is a Medium Access Control (MAC)_ID.